Predicting Adolescents' Global Functioning from Personality Typologies

Sarah J. Erickson, PhD
University of New Mexico
Hans Steiner, Dr. med.
Stanford University School of Medicine

ABSTRACT: This study examined the utility of three personality typologies in predicting global functioning in a non-clinic sample of adolescents. Participants were 140 students from middle class suburban public high schools (74 girls; mean age = 16.0 ± 1.2; 70.7% Caucasian, 11.4% African American, 7.1% Asian, 7.1% Hispanic, and 3.6% other) who completed psychometrically sound standardized measures of personality. They were combined into three four quadrant personality typologies. Global Assessment of Functioning (GAF) ratings were based on clinical interviews utilizing DSM criteria and were obtained by raters blind to self-report results. All three systems overlapped modestly but significantly. Each model detected significant GAF differences among quadrants. There was no gender difference in representation among the quadrants of the three systems. Results suggest that compared with unitary dimensions of personality, typologies concurrently utilizing two dimensions of personality functioning better capture individual differences on a complex psychological construct such as global functioning. Further research is warranted to examine the utility of these typological systems in predicting global functioning across a variety of clinical and nonclinical adolescent populations, and to determine how other aspects of global functioning may influence or interact with personality typologies.

KEY WORDS: adolescents; personality; typology; global assessment of functioning (GAF).

Introduction

Utility of Typologies

Despite different terminology, most current personality theories attempt to describe and understand how people's internal realities (e.g.,

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Address correspondence to Sarah J. Erickson, PhD, Logan Hall, Department of Psychology, University of New Mexico, Albuquerque, NM 87131-1161; e-mail: erickson @unm.edu.

perceptions, goals, values) impact their external realities (most notably behavior). Personality research has largely focused on specific characteristic dimensions (e.g., impulse control, optimism, extraversion) without addressing how these characteristics are associated with one another within individuals. Efforts to identify the breadth and organization of these various dimensions has proffered some important results, including evidence that most personality measures are linked to a small set of hierarchically superordinate factors.[1,2,3] In addition, research employing the most widely used and empirically supported personality trait structure model, the five factor model (FFM),[1] suggests that personality trait structure is universal across diverse cultures.[4] Although these superordinate dimensions are relevant to behavioral outcomes across situations, and are therefore more useful than subordinate dimensions, it may be the relationship of various superordinate dimensions that best represents personality structure.[5,6]

Dimensional classification systems can yield valuable clinical information on the specific variables of interest, but they are unable to address complex patterns of individual differences. Identifying how intersections of dimensions capture personality structure necessitates a shift from correlations among various dimensions to patterns of characteristics within types of people. Dimensionality is necessarily taken into account in a typological system in that it is a person's dimensional rating on two (or more) different constructs that allows for a typological classification. By defining types in terms of the intersections of dimensions, categorical versus dimensional comparisons can be made.

As delineated by Weinberger and Schwartz,[7] categorical characterizations are often more useful than dimensional ones when individuals differ on many characteristics, as evidenced by the typological classifications used to summarize individual differences in such varied and complex psychological constructs as attachment status, child temperament, psychiatric diagnoses, and parenting styles. Categorical analyses aid in the identification of asymmetrical patterns obscured by dimensional analyses. In this way, categorical characterizations may prove particularly clinically useful as they summarize the relationship between two (or more) relevant dimensions. We found this to be the case when investigating the relative contributions of approach and avoidance coping in predicting health risk behavior in adolescents: while avoidance coping predicted greater engagement in health risk behaviors and approach coping predicted less such behaviors, the

presence of both approach and avoidance coping in combination mitigated the influence of avoidance coping alone.[8] In addition, identifying personality style typologies in terms of the intersection(s) of dimensions allows for a comparison of categorical versus dimensional characterizations in their prediction of a range of outcomes.

In the present study we seek to empirically demonstrate the relative utility of three distinct typologies in predicting global functioning in a non-clinic sample of adolescents. Each of the three systems incorporates two superordinate dimensions of personality and reflects how adolescents manage stressors. We predict that although the three typological systems may significantly overlap, they will be complementary to the extent that they assess different dimensions and hence typologies. We selected three typologies based on four brief standardized measures with demonstrated clinical applicability.

A Four Quadrant Typology of Anxiety and Repressive Defensiveness

Findings from a number of independent investigations support the contention that the Marlowe-Crowne Social Desirability Scale[9] measures repressive defensiveness in the form of affect inhibition, "defensiveness and protection of self esteem"[10] rather than the construct it is assumed to measure, namely social conformity and desirability. By intersecting the Marlowe-Crowne scale with a trait anxiety scale such as the Spielberger State Trait Anxiety Scale,[11] a 2×2 table can be created which differentiates four coping styles. Weinberger, Schwartz, and Davidson[12] proposed the following designations for these four coping styles to maximize clarity: repressor (low STAI–high Marlowe-Crowne), low anxious (low STAI–low Marlowe-Crowne), high anxious (high STAI–low Marlowe-Crowne), and defensive high anxious (high STAI–high Marlowe-Crowne). This typological system has been used to discriminate between normal, psychosomatic, and affective disordered adolescents.[13]

A Four Quadrant Typology of Distress and Restraint

The Weinberger Adjustment Inventory (WAI)[7] is an empirically derived typology of individual differences in the social-emotional adjustment superordinate dimensions of distress and restraint. The experience of distress, the affective dimension, represents a dissatisfaction with self and the ability to achieve desired outcomes. The distress scale includes four subscales: anxiety, depression, low self-esteem, and

low emotional well-being. The restraint dimension refers to self control, socialization, and the suppression of immediate desires for longer term goals. It encompasses four subscales representing impulse control, consideration of others, suppression of aggression, and responsibility (the latter two are reverse coded).[7] The factor structure was highly comparable within clinical outpatient and nonclinical populations of youth and young adults.[14] According to Weinberger and Schwartz,[7] distress and restraint are conceptually and empirically related to the "Big Five" personality factors[1,3] and the three factor models of Eysenck[15] and Tellegen.[16] In brief, distress is empirically related to neuroticism[3,15] and negative affectivity;[16] and restraint is associated with the "Big Five" factors of agreeableness and conscientiousness and with the "three factors" of constraint[15] and "psychoticism."[7,17] The WAI has demonstrated discriminant validity in distinguishing psychosomatic girls from a normal comparison group of adolescents[18] and the WAI typology has been used to predict criminal behavior and recidivism in different typological groups of juvenile delinquents.[19]

A Four Quadrant Typology of Immature and Prosocial/Mature Defense Reactions

Defense reactions assume clinical importance because of their empirically-based relationship with adaptive functioning[20] in addition to their historical and largely theoretical association with psychopathology. Not all defensive efforts are equally successful in managing stressors or predicting adjustment, however. The strongest associations with adjustment and maladjustment appear to occur at the extremes of defensive efforts (projection on the more primitive end and sublimation on the more mature end, for example). Healthy adjustment is conceptually linked to mature defenses,[20–23] in that defense patterns become more organized, complex, and mature over time. The Defense Style Questionnaire-78 (DSQ-78) measures 19 defense reactions, including three superordinate factors (immature, prosocial, and mature) in adolescents. For the purposes of our typology, we combined the prosocial and mature factors and intersected this composite dimension with the Immature dimension.

Summary

The literature on these dimensional constructs within each typology presents several consistent findings that permit the formulation of specific hypotheses. Within the distress-restraint model, greater re-

ported distress and lower restraint are both independently associated with negative outcomes. The presence of both may mitigate the impact of distress alone.[7,12] Similarly, within the anxiety-repressive defensiveness model, upon which the distress-restraint model is based, greater reported anxiety is associated with a variety of negative outcomes while greater reported repressive defensiveness is associated with more positive outcomes.[9,11,24] However, although this has not yet been demonstrated, the general negative associations of anxiety may be mitigated by the presence of repressive defensiveness. Finally, greater reliance on immature defenses and lesser reliance on mature defenses are both independently related to negative outcomes. However, although this has never been addressed in the literature, the presence of both may attenuate the impact of immature defenses alone. Such typologies assume that both dimensions make contributions to outcomes and overlap modestly to produce findings in the aggregate which are not predicted by each dimension independently. We have previously shown that such typologies have discriminant validity in pediatric psychosomatic patients and in the prediction of recidivism in delinquent juvenile offenders.[13,19] In the present study we are not initially reporting on gender effects, as it is well documented that girls and boys differ on the dimensions included here[8,9,11,12,23] and our power would be significantly reduced by dividing our sample into boys and girls. In addition, the combination of boys and girls together in the subsequent analyses, with a post-hoc exploratory analysis of gender effects, is justified because boys and girls are evenly distributed among the typology cells.

The primary hypotheses to be tested were:

1. Within each model, the two dimensions would correlate modestly with each other, indicating their independent contributions to a person's overall adjustment.
2. Higher levels of anxiety, distress, and immature defenses would correlate with lower overall adjustment. Repressive defensiveness, restraint, and mature/prosocial defenses would show the opposite pattern.
3. The three systems would overlap modestly with each other, with the greatest overlap between the MCSDS/STAI and the WAI typologies.
4. Quadrant differences on the GAF outcome measure would be found within all three typological systems such that the fourth (lower right) quadrant would be associated with higher mean GAF scores and the first (upper left) quadrant would be associated with lower

mean GAF scores. In other words, within the MCSDS/STAI system, low anxiety and high repressive defensiveness would be associated with higher GAF scores; while high anxiety and low repressive defensiveness would be associated with lower GAF scores. Similarly for the other two systems, within the WAI system, low distress and high restraint would be associated with higher GAF scores; while high distress and low restraint would be associated with lower GAF scores. Within the DSQ system, low immature defenses and high mature/prosocial defenses would be associated with higher GAF scores; while high immature defenses and low mature/prosocial defenses would be associated with lower GAF scores.

5. The interaction of anxiety and repressive defensiveness would mitigate the influence of anxiety alone: subjects high in both would have higher adjustment scores than those high in anxiety alone, but not as good as subjects high in repressive defensiveness only. Similarly, the interaction of distress and restraint would mitigate the influence of distress alone; and the interaction of immature and mature/prosocial defenses would mitigate the influence of immature defenses alone.
6. In the post-hoc exploratory analysis of gender effects, girls would report higher levels of all six dimensions, with a subsequent higher proportion of girls in the upper right quadrant of all three typologies.

Method

Subjects

As part of a larger study, a non-clinic sample of convenience was obtained from two predominantly middle class suburban public high schools. Flyers describing the project were distributed to all high school students. Potential subjects were offered a soft drink if they completed demographic data and two screening instruments. Research staff telephoned parents of all interested students and obtained informed parental consent. Informed adolescent assent was obtained as well. If adolescents were in regular education classrooms and completed the screening instruments, they were invited to participate in a more extensive study at Stanford University. Enrollment in special education was the only exclusion criterion for this study. After informed written parental consent and adolescent assent were obtained for this second portion of the study, participants completed questionnaires and a clinical interview in person in our research laboratory. Questionnaires were administered by research assistants. The order of questionnaires described below was the standard administration order for this study. The sample that completed the protocol (N = 140) was representative of the high school population in terms of gender

(45.1% male), age (girls mean age = 15.8, s.d. = 1.3; boys mean age = 16.2, s.d. = 1.3; total sample mean age = 16.0, s.d. = 1.2; range = 14–18),* ethnicity (70.7% Caucasian, 11.4% African American, 7.1% Asian, 7.1% Hispanic, and 3.6% other), and socioeconomic status (predominantly middle class as indicated by the Hollingshead Two-Factor Index, mean = 2.8 ± 0.8). This study was approved by the Stanford University Institutional Review Board and standard parental consent and adolescent assent forms were utilized.

Instruments

Marlowe-Crowne Social Desirability Scale (MCSDS). The MCSDS is a 33 item self-report questionnaire which measures defensiveness.[9] It has high test/restest reliability, internal consistency, and concurrent validity with other measures of defensiveness. It has been employed with clinical and nonclinical samples of adolescents.[13]

State Trait Anxiety Scale (STAI). Adolescents completed the Trait Anxiety portion of the STAI.[11] The STAI is a 20-item self-report questionnaire measuring trait anxiety that has been used extensively with adolescent samples. Test-retest coefficients show adequate stability over time, and the overall median alpha coefficient of .90 indicates high internal consistency. The STAI is able to discriminate between normal and psychiatric groups, indicating construct validity.

Weinberger Adjustment Inventory (WAI). Social-emotional adjustment and personality functioning was assessed by the Weinberger Adjustment Inventory (WAI).[7] This instrument contains 84 items with ten subscales and two superordinate factors of distress (i.e., anxiety, depression, low self-esteem, and low well-being) and restraint (i.e., impulse control, suppression of aggression, consideration of others, and responsibility). In addition, the WAI operationalizes two separate components of defensiveness: repressive defensiveness, which refers to defensiveness about normative distress experiences, and denial, which refers to claims of nearly absolute restraint. The composite distress and restraint scales had internal consistencies of at least .91 and .85, respectively, across adolescent and adult subsamples. Seven month test-retest reliability correlations were .70 in a large youth and young adult sample.[14] Multitrait-multimethod analyses of self, teacher, and peer ratings provide evidence of convergent, discriminant, and predictive validity in adolescents and adults.[12,18]

Defense Style Questionnaire (DSQ-78). The DSQ-78 is a 78-item modification of Bond's Defense Style Questionnaire originally designed for use with adults.[21,23] The resulting instrument, the DSQ, included 59 items assessing 19 defense mechanisms: projection, passive aggressiveness, somatization, denial, regression, undoing, inhibition, splitting, acting out, fantasy, repression, withdrawal, anticipation, affiliation, humor, sublimation, suppression, reaction

*There was no statistically significant age difference between boys and girls.

formation, and altruism. Subjects completed the DSQ by rating each item on a 9 point scale ranging from strongly agree to strongly disagree. Separate alpha coefficients for each defense were generally quite modest across four comparison groups. The items, scales, and their psychometric properties are described elsewhere.[23] Test-retest stabilities of the 19 defenses over a 6–12 month period for a sample of 68 non-clinical adolescents yielded a mean reliability correlation of .53.

A Principal Component Analysis (PCA) with quartimax rotations on the 19 defense mechanism scores of a large (N = 693) adolescent sample, including the sample in this study, yielded three stable and interpretable factors with eigen values greater than 1 and with Kaiser sampling adequacy reaching acceptable limits. These factors included Immature defenses, consisting of 12 defense reactions including projection, denial, regression, somatization, and repression, among others; Mature defenses, consisting of five defense reactions including suppression, humor, affiliation, sublimation, and anticipation; and Prosocial defenses consisting of two defense reactions, altruism and reaction formation. Test-restest stabilities for the three composites exceeded .55 over a 6–12 month interval.[23] In a large population-based sample of adolescents, a principal components factor analysis of the most recent version of this scale suggests a two factor solution.[24] Therefore, Mature and Prosocial composites were combined in this paper. Coefficient alpha for the combined Mature/Prosocial Defense composite was .55 and for the Immature Defense composite was .81 for this sample.

Global Assessment of Functioning (GAF). GAF ratings were obtained for all subjects by one of two independent raters. Raters were female research assistants blind to self-report results. They trained on twenty subjects outside of the study pool. They established satisfactory interrater reliability ($r = .75$, $p < .05$) with a board certified psychiatrist with more than 17 years of experience and achieved satisfactory interrater reliability with one another as well ($r = .80$, $p < .05$). They determined independent ratings and addressed discrepancies with the psychiatrist until adequate interrater reliability was established. They were supervised on an ongoing basis and interviews were audiotaped to aid in the process of ongoing supervision. GAF ratings were based on clinical interviews and utilized DSM-III-R[25] criteria regarding current overall functioning on a continuum from psychological illness to health. In this standardized series of questions, subjects were asked about standard domains including their physical health; history of hospitalizations and medications; frequency of doctor appointments; appetite and sleep patterns; mood and mood disturbance; weight regulation and concerns; hearing, language, or speech disturbance; peer relationships; family interactions; type, duration, and frequency of therapeutic intervention(s); and their subjective sense of "happiness." Interviewers asked the same set of questions to obtain information about various domains. In addition to these standard domains and standardized questions, interviewers were trained to probe further into any areas of potential concern. Phone interviews were conducted for adolescents who completed the majority of the assessment in person but had time constraints that did not allow them to complete the interview in person. Eight interviews were conducted by phone. There were no systematic differences between interviews conducted in person and those conducted over the phone.

The GAF scale ranges from 0–90 and is subdivided into 9 equal intervals: 1–10, 11–20, . . . , 81–90 representing a subject's symptoms, behaviors, characteristics, and level of functioning in a variety of domains. Interviewers selected the interval which best characterizes the subject's current functioning, utilizing the interval's defining characteristics to determine where within the interval the rating fell. The only difference between DSM-III-R and DSM-IV[26] GAF criteria is that the DSM-III-R GAF scores range from 0–90, whereas DSM-IV GAF criteria include an additional 10 points indicating superior functioning (90–100) for a range of 0–100. The anchors and meaning of the first 90 points are identical in the two editions. Because the 90 point DSM-III-R GAF range we employed is narrower than the 100 point DSM-IV GAF range, our statistical analyses include more conservative estimates of effects. Psychometric properties are described by the authors as adequate with evidence of moderate reliability ($r = .61 - .91$).[27] Reliability is enhanced by training raters to achieve high interrater reliability with an experienced clinician, such as was done for this study.

Results

In order to determine the relationship between the three systems, and their unique contributions in predicting adjustment in a nonclinical sample of adolescents, five types of analyses were performed. First, the six axes comprising the three typological systems were correlated with each other and with the outcome variable (GAF). Because the variables of interest were distributed normally in our sample, Pearson correlations were employed. Second, kappas were obtained to determine the level of overlap of the three systems in predicting adjustment. Third, ANOVAs were employed to identify each typological system's quadrant differences in predicting adjustment. Fourth, interactions between the two dimensions of each typological system were evaluated to determine the mitigating power of the combined dimensions on the effect of the anxiety (MCSDS/STAI), distress (WAI), and immature defense composite (DSQ-78) dimensions alone. Finally, we included a post-hoc exploratory analysis of gender effects. Throughout the analyses, N ranged from 116–140. We retained and utilized data from participants with incomplete data in order to present optimally representative data.

Associations Between the Six Dimensions of the Three Typological Systems and Global Adjustment

To assess the degree of overlap between the six dimensions, we correlated the six dimensions and found modest to strong associations (see Table 1). Specifically, the strongest association was between dis-

Table 1
Pearson Correlations Among MCSDS/STAI, WAI, and DSQ Dimensions

	MCSDS	*STAI*	*Distress (WAI)*	*Restraint (WAI)*	*Immature (DSQ)*	*Mature/ Prosocial (DSQ)*
MCSDS						
STAI	–.26***					
Distress (WAI)	–.21**	.76****				
Restraint (WAI)	.43****	–.24**	–.18*			
Immature (DSQ)	–.30***	.53****	.53****	–.43****		
Mature/ Prosocial (DSQ)	.29***	–.20**	–.26**	.34****	–.06	

*p < .05; **p < .01; ***p < .001; ****p < .0001.

tress and STAI (Pearson r = .76, p < .0001); 8 of the remaining 14 correlations were significant at the p < .001 level, 4 correlations were significant at the p < .01, and 1 correlation was significant at the p < .05 level. Hence, 14 of the 15 dimensional correlations were significant at the p < .05 level. The strength of these correlations demonstrates that these three systems are related but sufficiently different.

To assess the degree of overlap between the two dimensions of each typological system, we correlated each set of two dimensions and found modest to minimal associations. In fact, the MCSDS and STAI were correlated at r = –.26 (p < .001); distress and restraint of the WAI were correlated at r = –.18 (p < .05); and the immature and mature/ prosocial factors of the REMY were correlated at r = –.06 (ns).

To identify the association between the six dimensions and the outcome variable, the GAF, we correlated each dimension with the GAF and found modest but significant associations between five of the six dimensions and the GAF. Specifically, distress, restraint, STAI, the Immature composite, and the Mature/prosocial composite were all significantly correlated with the GAF in the predicted directions (r = –.25, p < .01; r = .29, p < .01; r = –.26, p < .01; r = –31, p < .001; r = .25, p < .01, respectively). Only the MCSDS was not significantly correlated with the GAF (r = .11, ns).

To further assess the degree of overlap between the three systems in relation to the outcome variable, the GAF, we obtained weighted

kappa statistics for each combination of two typological systems. We found that all three systems overlapped modestly but significantly: the WAI and MCSDS/STAI systems had a weighted kappa of .36 ($p < .001$); the WAI and DSQ systems had a weighted kappa of .32 ($p < .0001$); and the MCSDS/STAI and DSQ systems had a weighted kappa of .34 ($p < .0001$). These kappas further suggest that the three systems overlap in complimentary ways, each describing different aspects of an individual's functioning.

Relationship Between Quadrant Differences and GAF (Outcome)

Within each of the three systems, we employed ANOVAs with GAF as the dependent variable to determine quadrant differences in GAF scores (see Tables 2–4). All three systems demonstrated significant GAF quadrant differences. Specifically, for the WAI system, $F = 3.69$, $p < .01$; for the MCSDS/STAI system, $F = 3.31$, $p < .05$; and for the DSQ system, $F = 3.91$, $p < .01$. Subsequent Tukey studentized range tests reveal that within all three systems, quadrant 4 is significantly different (higher mean GAF score) from quadrant 1 (lower mean GAF score). In addition, mean GAF scores for quadrants 2 and 3 are similar to each other and not significantly different from quadrants 1 or 4 for both the WAI and MCSDS/STAI systems. For the DSQ system mean GAF scores for quadrants 1 and 2 are similar to each other and significantly different from quadrant 4, whereas quadrant 3 is not significantly different from the other three quadrants.

To determine the sensitivity of each system to detect GAF differences among quadrants, we computed effect sizes for GAF quadrant

Table 2
Global Assessment of Functioning (GAF) as a Function of STAI/MCSDS Classification

	Low Repressive Defensiveness	*High Repressive Defensiveness*
High Anxiety	Quadrant 1: A 69.44	Quadrant 2: AB 73.96
Low Anxiety	Quadrant 3: AB 75.17	Quadrant 4: B 75.83

Note: Anxiety classification is based on a median split on the STAI.
Repressive defensiveness classification is based on a median split on the MCSDS.
A,B: Tukey studentized range test results indicate GAF quadrant differences.

Table 3
Global Assessment of Functioning (GAF) as a Function of WAI 4 Quadrant Classification

	Low Restraint	*High Restraint*
High distress	Quadrant 1: A 70.43	Quadrant 2: AB 74.44
Low distress	Quadrant 3: AB 71.34	Quadrant 4: B 77.26

Note: Distress classification is based on a median split on the distress dimension of the WAI.
Restraint classification is based on a median split on the restraint dimension of the WAI.
A,B: Tukey studentized range test results indicate GAF quadrant differences.

differences. The effect sizes were .64 for the MCSDS/STAI system, .76 for the WAI system, and .69 for the DSQ system.

The addition of interaction terms to these ANOVAs with each of the three typological systems yielded statistically non-significant results. These results are in opposition to our (fifth) hypothesis regarding the interaction effect of the combined dimensions on the influence of singular dimensions. However, the simultaneous influence of both dimensions within each system yielded slightly different outcomes compared with the outcomes associated with each unitary dimension. These findings, although statistically nonsignificant, suggest that the combined influence of anxiety and repressive defensiveness mitigated

Table 4
Global Assessment of Functioning (GAF) as a Function of DSQ 4 Quadrant Classification

	Low Mature/ Prosocial Defenses	*High Mature/ Prosocial Defenses*
High Immature defenses	Quadrant 1: A 70.65	Quadrant 2: A 71.08
Low Immature defenses	Quadrant 3: AB 74.16	Quadrant 4: B 77.50

Note: Immature defense classification is based on a median split on the Immature dimension of the REMY.
Mature/prosocial classification is based on a median split on the Mature/prosocial dimension of the REMY.
A,B: Tukey studentized range test results indicate GAF quadrant differences.

the influence of anxiety alone; the combined influence of distress and restraint mitigated the influence of distress alone; and the combined influence of immature and mature/prosocial defenses mitigated the influence of immature defenses alone.

Post-hoc Exploratory Analysis of Gender Effects

Gender effects on all six dimensions have been documented in the original samples (see manuals for each instrument). However, their relative representation among the four quadrants of each system has not yet been determined. Within each of the three typological systems we employed chi-square tests to determine if the proportion of girls in each of the four quadrants differed from the proportion of boys in each of the four quadrants. Specifically, we hypothesized that there would be more girls in the upper right quadrants (quadrant 2) of all three typologies (hypothesis 6). For each of the three systems, chi-square tests were statistically non-significant. This finding suggests that the proportion of girls in the four quadrants was not significantly different from the proportion of boys in the four quadrants for any of the three typological systems.

Discussion

Two superordinate dimensions within each of three personality models were used to create four quadrant models of higher order personality styles. The primary finding of this study is that compared with unitary dimensions of personality, typologies concurrently utilizing two dimensions of personality functioning better capture individual differences on a complex psychological outcome such as global adjustment. This finding is congruent with the conclusions offered by Weinberger and Schwartz[7] in their review of the utility of typological systems in predicting multidimensional constructs.

Regarding our first hypothesis, within each typological model, the two dimensions correlated modestly to minimally with each other. Specifically, the MCSDS/STAI and WAI systems include two dimensions that correlate modestly with each other, while the DSQ-78 system includes two dimensions that are unassociated. With broad personality constructs such as repressive defensiveness and anxiety, and distress and restraint, respectively, we would expect modest negative associations.[18] The absence of association for the DSQ-78 dimensions

can be explained because the DSQ-78 system includes a wide array of defenses wherein utilizing immature defenses, for example, does not necessitate utilizing mature and prosocial defenses.

Because at most we found modest overlap between the two dimensions within each system, each dimension within a system was able to make an independent contribution in its capacity to predict a person's overall adjustment. In fact, regarding hypothesis 2, distress, restraint, STAI, the Immature composite, and the Mature/prosocial composite were all significantly correlated with the GAF, while only the MCSDS was not significantly correlated with the GAF. The correlation coefficients were all in the expected direction: higher levels of anxiety, distress, and immature defenses correlated with lower overall adjustment while higher levels of restraint and mature/prosocial defenses correlated with higher overall adjustment. This set of findings is in accordance with other findings regarding the associations of these constructs with overall functional status.[11,22,28]

In further assessing the degree of overlap between the three systems and the outcome variable, the GAF, we found that all three systems overlapped modestly but significantly. This finding suggests that while the three systems may overlap, they each contribute uniquely in predicting the GAF. The three systems are related but sufficiently different: each offers a different summary of an individual's functioning. This finding is what we would expect from the three different classification systems and is supported by findings related to the overlap of the WAI and DSQ systems[18] and by findings related to different systems (DSQ and coping strategies) that modestly overlap but contribute uniquely in predicting the GAF.[22]

Results of our fourth hypothesis suggest that all three systems demonstrated significant GAF quadrant differences. Specifically, for each of the three systems, quadrant 4 was associated with a significantly higher GAF score compared with quadrant 1. In addition, mean GAF scores for quadrants 2 and 3 were similar to each other and not significantly different from quadrants 1 or 4 for both the WAI and MCSDS/STAI systems. For the DSQ system, mean GAF scores for quadrants 1 and 2 were similar to each other and significantly different from quadrant 4, whereas quadrant 3 was not significantly different from the other three quadrants. Because the effect sizes for the typologies' prediction of GAF scores (.64–.76 for the three systems) were significantly greater than the correlations of each dimension with the GAF (.25–.31 for the six dimensions), we conclude that the typologies predict the GAF over and above their unitary dimensions. Hence, typolo-

gies are more sensitive to detecting overall adjustment differences than are the unitary dimensions of which they are comprised. This finding is similar to findings from studies employing typological systems to predict complex outcomes with a variety of adolescent populations.[13,18,19]

Interaction terms were non-significant for all three systems. However, within each system, compared with the outcomes associated with the unitary dimensions, the simultaneous consideration of both dimensions resulted in slightly different outcomes among the four types. This combined influence was based on independent main effects, not statistically significant interactions. This set of findings is similar to our findings with approach and avoidance coping in a non-clinical sample of adolescents: both approach and avoidance coping demonstrated main effects for GAF scores, their interaction term was statistically nonsignificant, but the presence of both coping dimensions resulted in slightly different outcomes compared with the main effects of each unitary dimension.[8] This suggests that it is the combined influence of the two dimensions in each of these systems that captures adjustment beyond the independent contributions of the unitary dimensions.

Our post-hoc exploratory analysis of gender effects revealed no significant gender differences by quadrant for any of three systems. This suggests that girls and boys were not different in their relative representation among the four quadrants of each system.

Implications and Limitations

Within each of three prototype systems, two superordinate dimensions were used to define four quadrant categories. Consistent with Weinberger and Schwartz'[7] findings, types at this higher order revealed group differences in a complex psychological construct such as global adjustment. Our findings underscore the value in determining how intersections of dimensions influence individual differences in adjustment rather than looking at individuals along a single continuum.

Our sample of suburban, primarily white, middle-class nonclinical high school students necessarily limits the findings to this population and does not address how clinically diagnosable subjects would have scored on the personality dimensions or on the GAF, or how many subjects in this study met psychiatric disorder criteria. This study did not address what level of severity distinguishes normal individual differences from psychopathology. In fact, these results suggest that a

study of the utility of these typological systems in predicting global functioning across a variety of clinical and nonclinical adolescent populations is warranted. In addition, in future research it would be important to determine the rate of psychiatric disorders in a nonclinical sample such as ours and determine the relative utility of different typological systems in discriminating among various psychiatrically disordered and nondisordered youth. This information could assist the clinician in determining which typological system may be most useful given a specific population. Utilizing the DSM-III-R GAF criteria instead of the DSM-IV GAF criteria represents a limitation of this study in that participants could not score in the superior functioning range, and we were therefore unable to investigate the relationship between this superior functioning range and the typological systems. However, these findings also suggest that the typological approach has validity even within an abbreviated range. Further research is necessary in order to identify how other aspects of global functioning, for example, intelligence, environmental risk factors, parent-child relationship quality, or family resources, may influence or interact with the personality types described here.

Summary

This study examined the relative utility of three distinct personality typologies (each with two intersecting dimensions) in predicting global functioning in a non-clinic sample of 140 adolescents, ages 12–19. Participants completed standardized measures of personality functioning, including anxiety (Spielberger State-Trait Anxiety Inventory), repressive defensiveness (Marlowe-Crowne Social Desirability Scale), distress and restraint (Weinberger Adjustment Inventory), and defense mechanisms (Response Evaluation Measure-Youth). We used these typologies to predict clinician-rated global assessment of functioning (GAF). GAF ratings were based on clinical interviews utilizing DSM-III-R criteria and were obtained by raters blind to self-report results.

Within each typological model, the two dimensions correlated modestly with each other, indicating their independent contributions to an adolescent's overall adjustment. Across typological systems, the six dimensions (two dimensions from each of three typological models) correlated modestly to strongly, suggesting that the three systems are related but sufficiently different. In determining the relationship between the six dimensions and the outcome variable (GAF), higher lev-

els of anxiety, distress, and immature defenses correlated with lower overall adjustment. Restraint and mature/prosocial defenses demonstrated the opposite pattern. In further assessing the degree of overlap between the three systems in relation to the GAF, we found that the three systems overlapped modestly but significantly with each other, suggesting that each of the three systems captures different aspects of global functioning.

Each typological model demonstrated significant sensitivity in detecting quadrant differences in the GAF outcome measure. Specifically, within all three typological systems, the fourth (lower right) quadrant was associated with significantly higher mean GAF scores than the first (upper left) quadrant. Although interaction terms between the two dimensions of each model were statistically nonsignificant, the simultaneous consideration of both unitary dimensions resulted in slightly different global adjustment outcomes compared with outcomes associated with unitary dimensions alone. Our post-hoc exploratory analysis of gender effects found no significant gender differences by quadrant for any of the three systems. In summary, these results suggest that categorical characterizations are more useful than dimensional ones when individuals differ on complex psychological constructs such as global functioning.

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